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AUTHOR Boyd, Herbert F.
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ABSTRACT

The Non-Verbal Test of Cognitive Skills (NTCS), by Boyd and Johnson, attempts to address the problems of non-verbal and culturally biased testing instruments in three directions: (1) Test items should be developed which cannot be linked to a specific culture or environmental source as previous learning; (2) Assumed language facility should be minimized through non-verbal demonstrations (pantomime); and (3) Items which are capable of holding or getting the attention and interest of non-verbal or language disadvantaged children should be utilized. Designed as a performance puzzle, the test measures potential school learning without using verbal language. Items are completed for a downward extension to year two and an upward extension to age eighteen. In a sample of 849 children in grades K through 6 the correlation of the NTCS with achievement tests (California Test of Basic Skills, Metropolitan Reading Test, Stanford Achievement and Iowa Test of Basic Skills) ranged from .41 to .68. (PN)

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THE USE OF NONVERBAL AND/OR CULTURE FAIR TESTS FOR ASSESSMENT OF ACADEMIC LEARNING ABILITY

Herbert F. Boyd, Ph.D.
University of South Florida - Sarasota

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THE USE OF NONVERBAL AND/OR CULTURE FAIR TESTS FOR ASSESSMENT OF ACADEMIC LEARNING ABILITY

Herbert F. Boyd, Ph.D.
University of South Florida - Sarasota

Some years ago this writer participated in an A.P.A. Division 16 meeting which was devoted to "defining the role of the school psychologist." My contribution at that time was the notion that the most practiced role of the school psychologist was that of "A Gazelle with a Binet Kit!" While the intent of the remark was humor, the intended latent meaning was directed at the emphasis on accumulating scores on kids, which in some cases, became the end rather than the means to an assessment of abilities. Consider, if you will, the number of journal articles and studies devoted to the correlation of "short form" or "briefer administrations" of the Binet or WISC. From a regression theory standpoint if a few items would correlate with external criteria then prediction would be just as accurate and "more efficient." Industry uses this utility theory approach because it saves "big bucks" in personnel decision making. The problem we are addressing here is not measured in "bucks" but effects on human lives. Procedurally the correlating of a shortened form with the complete form is correct. The problem of bias in assessment procedures is, basically, Did the complete form of the instrument really measure accurately in the first place?

Criticisms have largely placed emphasis on two areas of concern:

1. Is the content validity established. That is, does it measure content which would be a reasonable acquisition for the person being tested. This is most commonly referred to as cultural contamination or cultural bias.

2. The method of obtaining the results on the instrument. For example, was the material presented verbally, visually, or in combination. If

presented verbally, was language facility an assumption in the test construction?

Attempts to deal with these two areas have dealt with the problem by:

1. Devising items which are thought to be "culture-free" such as Catell assembled in his early tests.
2. Devise "non-verbal" items which eliminate the language bias from the test. (Form boards were an early approach to this.)

Another source of confusion in the area of ability testing has been the measurement of inferred domains versus the measurement of actual performance. For example, I could have 100,000 ten year old boys run a 100 meter dash. I could time each of these and compute an average for 10 year olds running 100 meters. If my sample represented the overall population of 10 year males I might begin to differentiate the fastest quartile from the slowest quartile, etc. If on the other hand I measure the height in inches of each of these boys I might (and I'm sure somebody will) conclude the boys who are "short" will run slower than boys who are "tall." If I go a step farther and just measure height and then predict speed without having boys run then I am in the area of inference.

Consider how many youngsters have been given a Binet and then someone says, "He can't do 4th grade work because the test shows his M.A. to be 8-0." Indeed, there was a time when articles appeared in professional journals using the term "over-achiever." These described children who were reading a higher level than they should be according to the "measured ability."

This same type of problem surfaced in the development of the early "performance scales" or "non-verbal Tests." A child would score close to average on an "Arthur Point Scale" and be unable to read or succeed in school works. The test inferred one kind of ability while the school was expecting another. The eventual demise of most "non-verbal" tests was the low correlation with "school learning."

Again we are confronted with the inferred measure versus the performance measure.

Another problem area which is usually dismissed with a paragraph or two describing "establishing rapport" or "arranging good testing conditions" has to do with the validity of the person being tested. That is how valid is an "I don't know." or a "shrug of the shoulders." We never really know how valid the performance of a subject is. If the subject is not interested in giving correct responses then one never really measures the true capacity of the responder. I am continually amazed at test findings which say, "He has poor attention span" when I see the youngster spend $3 in quarters playing a computer game in an Arcade for TV games. Perhaps what the examiner should have said was, "He doesn't attend to the tasks which I selected to present to him!"

So we are confronted with not two but three sources of false impressions. In summary, they are:

1. Is the content appropriate?

2. Is the assumption of language facility fair?
3. Does the subject show any interest in performing the tasks which I have selected for him? (Validity of test taker.)

In responding to the three sources of false impressions the following directions seem useful.

1. Whenever possible items should be developed which cannot be linked to a specific cultural or environmental source as previous learning.
2. Minimization of assumed language facility through non-verbal demonstrations (pantomime). Merely translating an item into a minority language doesn't always alter the cultural bias of the item. For example, "Wann ist der Geburtstag von Georg Washington?" does not de-culturalize that question for a person raised in Germany.
3. Items which are capable of holding or getting the attention and interest of non-verbal or language disadvantaged children should be utilized.

Needless to say, the above suggestions are easy to state but certainly not simple to implement. Changes are slow to filter into everyday operations. The result of the prevalent mis-use of test data was the eventual litigation leading to the restriction of use of certain instruments and even, in some cases, placing restrictions or restraints on procedures used in assessment.

It should be pointed out that the number of years which passed between

the first discussions of inappropriate or culturally biased instruments and the ultimate translation of these criticisms into either law or practice spans several decades.

Dr. G. Orville Johnson and myself attempted to address the problems in the previous section of this presentation in our Non-verbal Test of Cognitive Skills.

The items were selected as being less contaminated by one cultural background than most test items currently in use.

The only verbal directions are, "Watch!", or "you do it!" Non verbal response is required and verbalization is held to a minimum so that a verbal mode is not encouraged.

Because the items are performance-puzzle types they seem to succeed in arousing interest even with behavior problem children. A recent study by Dr. James Connelly in Alaska found the test well received by Eskimo children who he feels are usually not too verbal. With this group the NTCS correlated .87 with the WISC-R-V.I.Q., .89 with the WISC-R-P.I.Q. and .91 with the WISC-R-F.S.I.Q.

The test was designed to give some measure of potential school learning without using verbal language. In Connelly's group of Eskimo children the NTCS correlated .71 with the Iowa Test of Basic Skills Reading Section and .76 with the mathematics section.

In our sample of 849 children in grades K through 6 the correlation of the NTCS with achievement tests (CTBS, M.R.T., Stanford Achievement and Iowa Test of Basic Skills) ranged from . 41 to .68.

The subtests consist of:

1. Paper Folding
2. Cube Building
3. Figure Identification
4. Figure Completion
5. Figure Discrimination
6. Figure Drawing
7. Figure Memory
8. Picture Completion I - What's Missing
9. Picture Completion II - Function
10. Knox Cubes
11. Dominoes
12. Tapping
13. Figure Association

We have completed items for a downward extension to year two and upward to age eighteen. Vocational education personnel have requested the upward extension.

As with any published instrument, we have already received some criticism (see Journal of Psychoeducational Assessment, March 1985). The commitment of companies such as A.G.S. in supporting the research and

development of the Kaufman Assessment Battery is to be commended. It is almost impossible for a private individual to afford the cost and time involved in test development. Only with commercial or foundation support can this task be accomplished. The requirement of parental consent for individual testing mandates that entire classes must be tested so that discrimination is reduced. If a test constructor tests only children whose parents have consented in writing then the description of the population should be, "This test was field tested on a population of children whose parents allowed us to test and as such represent no demographic or cultural distribution."

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